

## **Background**

The inventors of this current invention have tested over 1,500 dairy farms for neutral to earth voltage. The Fluke 105B and also 199C Scopemeter's were used. The inventors could not understand why despite seeing no NEV events farmers complained their cows still had symptoms associated with it. As \$30,000 oscilloscope where out of the question this lead to the current inventors designing the present invention. Since applying this current invention to the same farms other oscilloscopes where used on, several electrical problems have been identified and solved which has lead to complete mitigation of NEV problems on farms and productive cows. The speed and accuracy of this online oscilloscope system enables an expert to successfully diagnose neutral to earth events and by reducing and eliminated them assist the welfare of animals and may significantly improve the profitability of farm businesses.

Contemporary oscilloscopes being used to identify stray voltage on farms fail to see very short duration events on the scales normally used which are generally between 2 milli-seconds (ms) and 5 ms per division. This current invention utilizes a differential oscilloscope which has high resolution and displays very short term voltage events possibly seen on the 200 micro-second ( $\mu$ s) per division scale by contemporary oscilloscope on the 5ms per division scale. Another essential feature of the current invention is that whereas contemporary oscilloscopes and their software having the speed and resolution to capture  $\mu$ s duration events are very expensive the current invention's oscilloscope is significantly less expensive.

This invention's oscilloscope system is installed at the testing location and uses high quality BNC terminal coaxial computer type cable for its probes. The oscilloscope is connected to a secure network and an expert is able to remotely connect to it using encrypted password security protection. The entire oscilloscope is embedded into a computer and this computer is designed to be highly secure and the remote expert is the only person with full control of the oscilloscope and computer system.

## Abstract of the Disclosure

Essentially what defines this current invention is the complete combination of everything put together constituting a new creation as follows; the advanced oscilloscope module; the differential unit module; the high powered computer with a CPU of over 2GHz in speed, with 40GB high speed hard drive and motherboard with high cache and at least 256 MB of RAM; the ability of this whole advanced differential oscilloscope to have remote access by way of a modem, either phone line, cable or wireless; the customized highly secure SvScope for Windows software specially designed to run the oscilloscope module; the Windows based Operating System entirely customized by removing and disabling and password encrypting many of it's features; the NEMA II dust and insect proof stainless steel case having an LCD screen mounted on it's front and pull-down and hinged tray for the keyboard and mouse with all external connections on the side.

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<b>Filed:</b>	Although the present invention has been described hereinabove by way of preferred embodiments thereof, these embodiments can be modified at will, within the scope of the appended claims, without departing from the spirit and nature of the present invention.

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